

26-APR-2007 DSN File 0A\19832****_06\Sheet Files\Structures\3D Files\XXXX_01-Location.dgn

INDEX OF SHEETS

- 1. LOCATION PLAN AND NOTES
- 2. ELEVATION
- 3. FOUNDATION DETAILS
- 4. STEEL DETAILS
- 5. TUBE CONNECTIONS DETAILS
- 6. SIGN PANEL DETAILS
- 7. LUMINAIRE DETAILS

DESIGN DATA

LOADING IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" 4th EDITION, 2002 AND 2003 INTERIM SPECIFICATIONS.

WIND LOAD: 100 MPH WITH 1.14 GUST FACTOR
Kz = 1.0

ICE LOAD: 3.0 PSF

DEAD LOAD:
SIGN PANELS: 12 PSF WITHOUT LIGHTING/
(INCLUDING ATTACHMENTS) 15 PSF WITH LIGHTING

USE FATIGUE CATEGORY I

UDOT STANDARD DESIGN FOR CANTILEVER SIGN STRUCTURES.

CAST-IN-PLACE CONCRETE f'c = 4,000 PSI:
CLASS AA (AE) fy (REINF.) = 60,000 PSI

STRUCTURAL STEEL fy = 35,000 PSI (STRUCTURAL TUBING)
fy = 36,000 PSI (PLATES AND SHAPES)

- 1. USE STRUCTURAL TUBING CONFORMING TO ASTM A 53 GRADE B OR API-5L-X42.CHEMICAL COMPOSITION FOR THE STRUCTURAL TUBING WILL SATISFY:
CARBON ≤ 0.25%
PHOSPHORUS ≤ 0.04%
MANGANESE ≤ 1.35%
SILICON ≤ 0.05%
- 2. CONFORM ALL OTHER SHAPES AND PLATES TO AASHTO M 270 GRADE 36 ASTM A 572, (ATSM A 709, GRADE 36)
- 3. HOT DIP GALVANIZE ALL STRUCTURAL STEEL AFTER FABRICATION IN ACCORDANCE WITH AASHTO M 111 (ASTM A 123). STRUCTURAL STEEL MAY BE METALIZED USING ELECTRIC ARC SPRAYED ZINC WIRE AS AN ALTERNATE TO HOT DIP GALVANIZING.
- 4. FURNISH ANCHOR BOLTS CONFORMING TO AASHTO M 314, GRADE 55 (ASTM F-1554 GRADE 55). DO NOT WELD ANCHOR BOLTS TO REINFORCING STEEL. USE HEAVY HEX NUTS AND WASHERS ACCOMPANYING THE ANCHOR BOLTS CONFORMING TO ASTM A 563 GRADE A AND F 844 SPECIFICATIONS RESPECTIVELY. GALVANIZE NUTS, WASHERS AND THE ANCHOR BOLTS IN ACCORDANCE WITH AASHTO M 232 ASTM A 153). ALL GALVANIZING STEEL THREADS ARE TO BE FREE FROM DEFECTS. ALLOWING NUTS TO BE FREE RUNNING BY HAND FOR THE ENTIRE LENGTH OF THE THREADS.
- 5. ADJUST THE POST AS NECESSARY DURING SIGN ERECTION WITH THE USE OF LEVELING NUTS TO MAKE THE SIGN PANELS LEVEL. AT FINAL POSITION, ENSURE THE LEVELING NUTS (BELOW BASE PLATE) ARE IN FULL CONTACT WITH THE BASE PLATE. AFTER ACHIEVING FULL CONTACT, TIGHTEN THE TOP NUTS (ABOVE BASE PLATE) TO ONE-SIXTH TURN BEYOND SNUG TIGHT. AFTER TOP NUTS ARE FULLY TIGHTENED, RETIGHTEN LEVELING NUTS TO ENSURE FULL CONTACT WITH THE BASE PLATE.
- 6. MANUFACTURER MAY ADJUST THE LOCATION OF THE FIELD SPLICE AWAY FROM THE ELBOW ONLY. THE FIELD SPLICE MUST NOT INTERFERE WITH SIGN ATTACHMENT BRACKETS.

- 7. USE COATED, DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M31, GRADE 60.
- 8. DESIGN WELDS AND FABRICATE STRUCTURAL STEEL IN ACCORDANCE WITH AWS D 1.1 FOR STRUCTURAL TUBING. USE ULTRASONIC TESTING ON THE COLUMN TO BASE PLATE WELDS (WELD DETAIL A) AND THE FIELD SPLICE WELDS (WELD DETAIL C).
- 9. DO NOT USE THE OPTIONAL SHOP SPLICE WHEN THE SPLICE LOCATION IS LESS THAN 7'-0 ABOVE THE TOP OF THE BASE PLATE.
- 10. USE CLASS AA (AE) CONCRETE FOR ALL FOUNDATION COMPONENTS.
- 11. ENSURE THE FIELD SPLICE SURFACES ARE IN FULL CONTACT WITHOUT GAPS PRIOR TO SNUG TIGHTENING OR FULLY TENSIONING THE BOLTS. THE CONTACT SURFACE IS THE AREA DEFINED BY A 1 3/8" RADIUS AROUND EACH BOLT.
- 12. DRILL AND TAP FOR 1 1/2" DIAMETER CHASE NIPPLES AND PLUG WITH RECESSED PIPE PLUGS. PLACE NIPPLES PERPENDICULAR TO HORIZONTAL SIGN PANEL AXIS AND OPPOSITE FROM APPROACHING TRAFFIC.
- 13. SHIFT SIGN PANEL Laterally +/- 6" AS NEEDED TO AVOID CONFLICT WITH HANDHOLE.
- 14. FIELD VERIFY ALL DRILLED SHAFT LOCATIONS AND TOP OF DRILLED SHAFT ELEVATIONS PRIOR TO FABRICATION OF THE POSTS.
- 15. DO NOT SCALE DIMENSIONS FROM DRAWINGS.
- 16. SET TOPS OF DRILLED SHAFTS TO ENSURE MINIMUM CLEARANCES IN THE FINISHED STRUCTURE. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION TO ENSURE MINIMUM CLEARANCES IN THE FINISHED STRUCTURE.
- 17. CHARPY V-NOTCH TOUGHNESS TESTS ARE REQUIRED FOR ALL MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN 1/2". TEST RESULTS TO MEET REQUIREMENTS FOR ZONE 2.

QUANTITIES

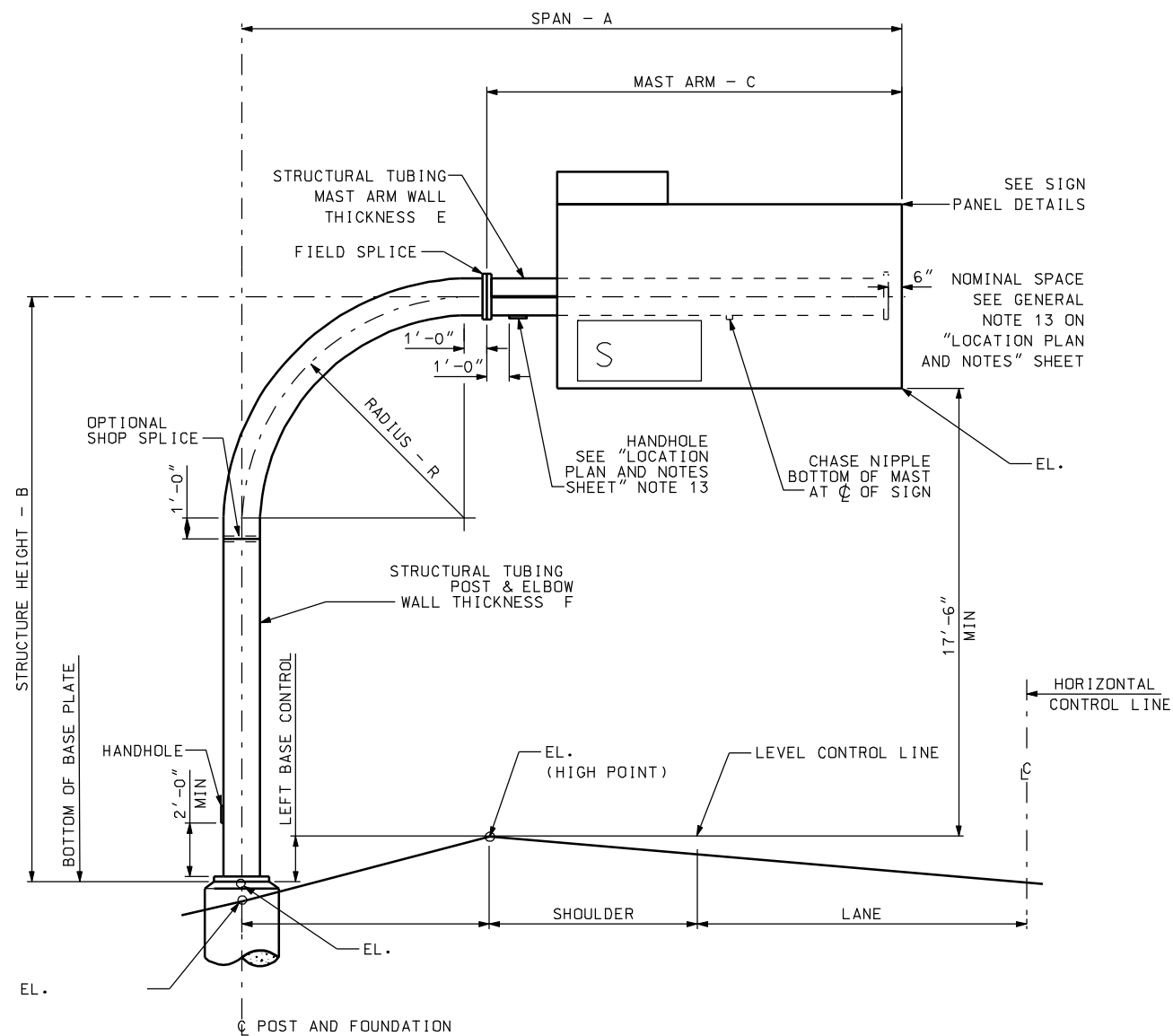
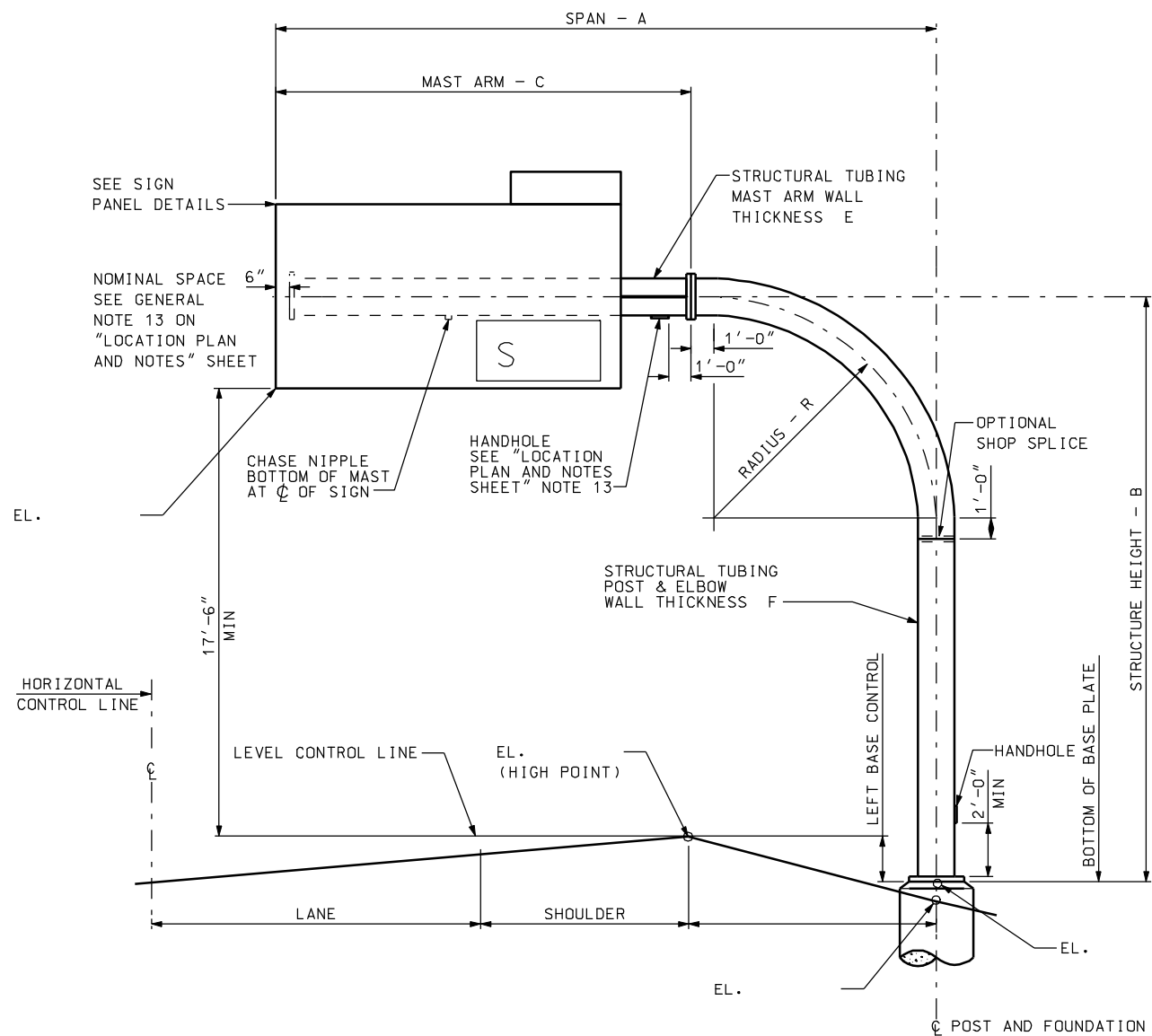
ITEM	ESTIM.	UNIT	AS CONST.
XX INCH CANTILEVER SIGN STRUCTURE		EACH	
XX INCH SIGN FOUNDATION		EACH	

LOCATION PLAN

LOCATION PLAN

PROJECT NAME LINE 1		UTAH DEPARTMENT OF TRANSPORTATION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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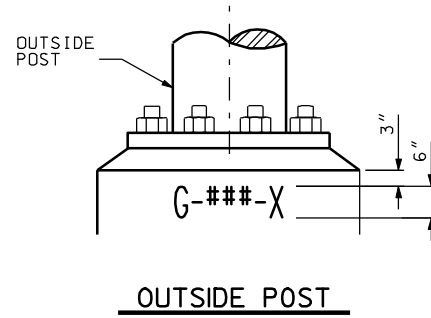
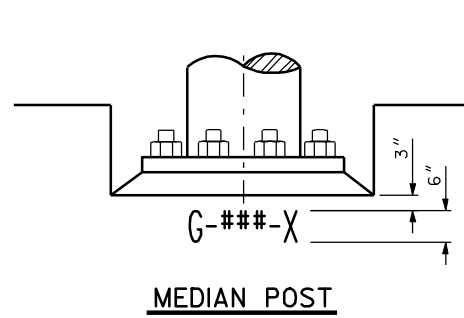
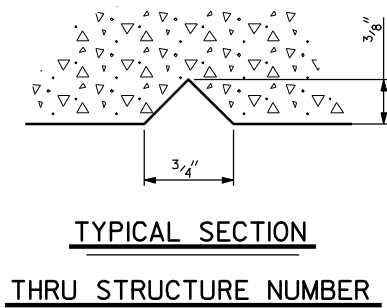
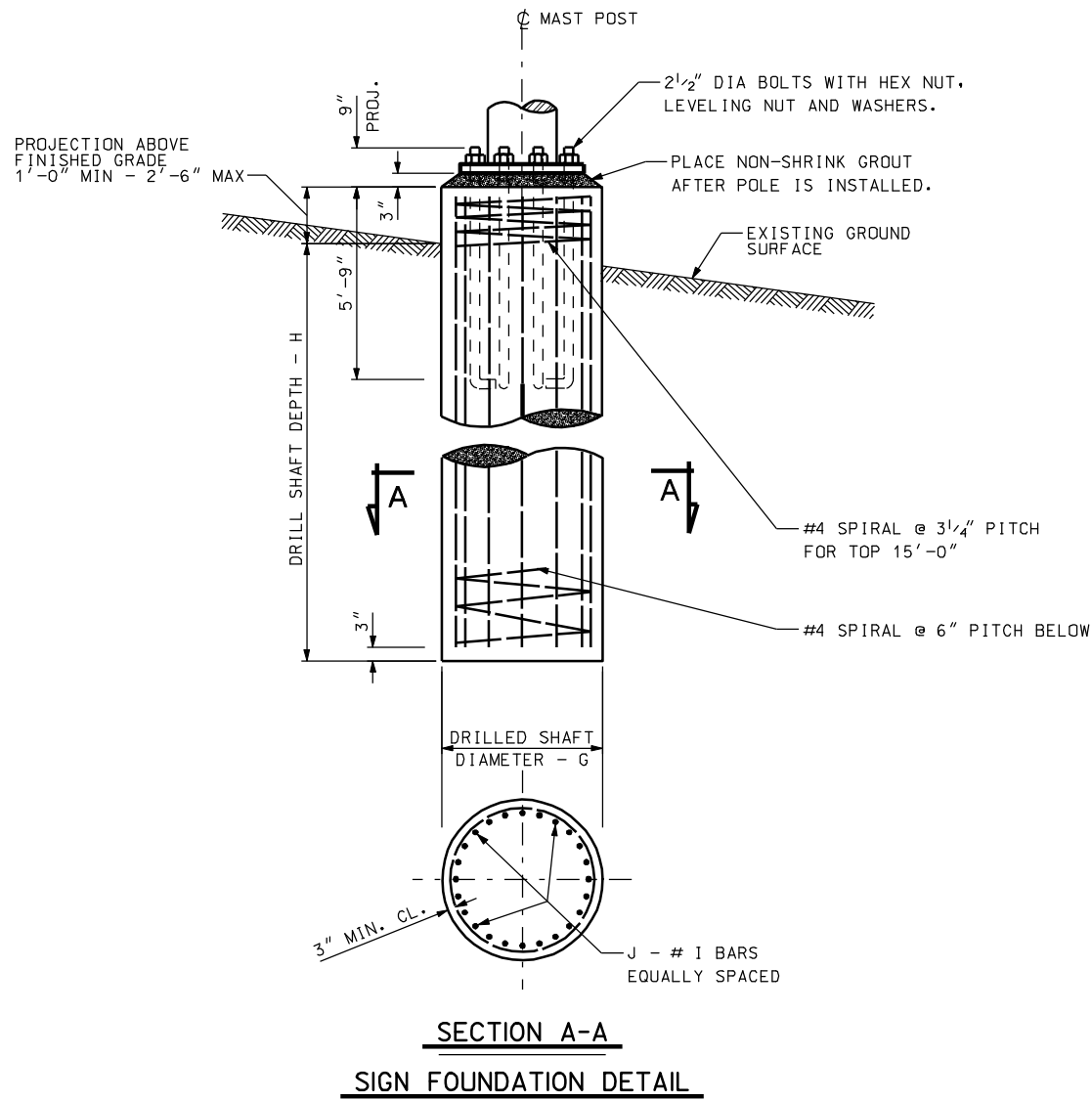


ELEVATION VIEW

LOOKING AHEAD IN THE DIRECTION OF TRAFFIC

UTAH DEPARTMENT OF TRANSPORTATION		SALT LAKE CITY, UTAH		STRUCTURES DIVISION		DESIGN		CHECK		DATE		BY		REVISIONS	
PROJECT NAME LINE 1		PROJECT NAME LINE 2		ELEVATION		APPROVAL		RECOMM.		DATE		DATE		DATE	
PROJECT NUMBER		PROJECT NUMBER		PROJECT NUMBER		APPROVED		FOR UDOT		DATE		DATE		DATE	
COUNTY		COUNTY		COUNTY		G-####-X		DRG. NO.		SHT. 2 OF 6		SHT. 2 OF 6		SHT. 2 OF 6	

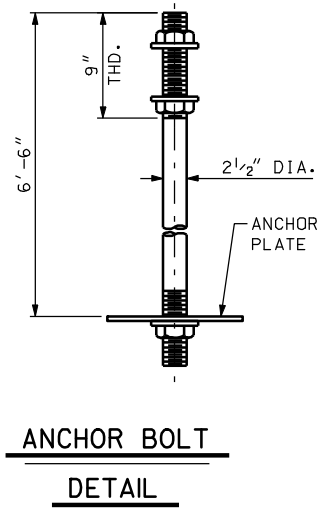
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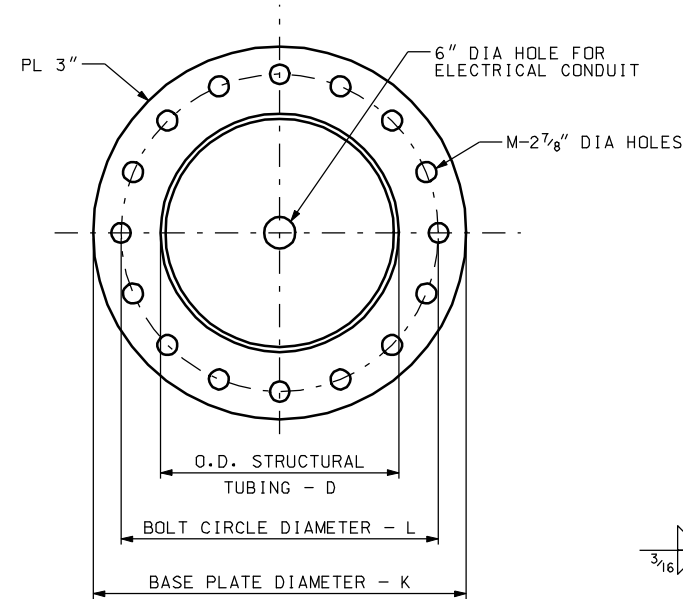
NOTES:

1. FORM THE STRUCTURE NUMBER INTO BOTH FACES OF THE CONCRETE MEDIAN.
2. FORM THE STRUCTURE MUNBER INTO THE ROADWAY SIDE OF THE FOUNDATION.

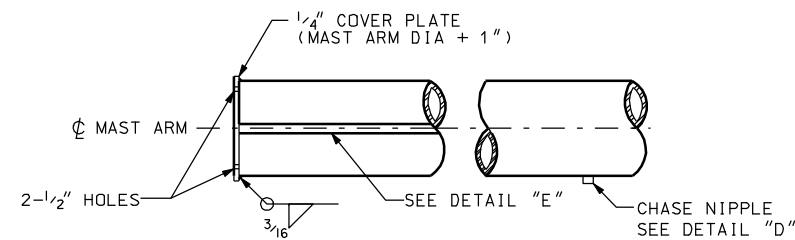
STRUCTURE NUMBER DETAIL



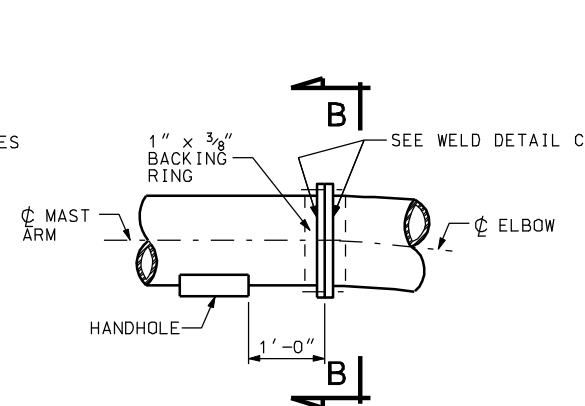
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PROJECT NAME	LINE 2	SALT LAKE CITY, UTAH	DRAWN	CHECK	DATE	
FOUNDATION DETAILS		STRUCTURES DIVISION	QUANT.	CHECK	NO.	
PROJECT NUMBER	PROJECT NUMBER					
COUNTY						
G-####-X						
DRG. NO.						
SHT. 3	OF 6					



POST BASE PLATE

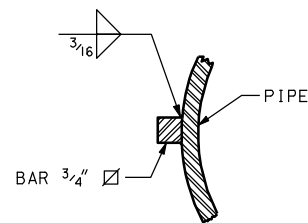


MAST ARM END DETAIL

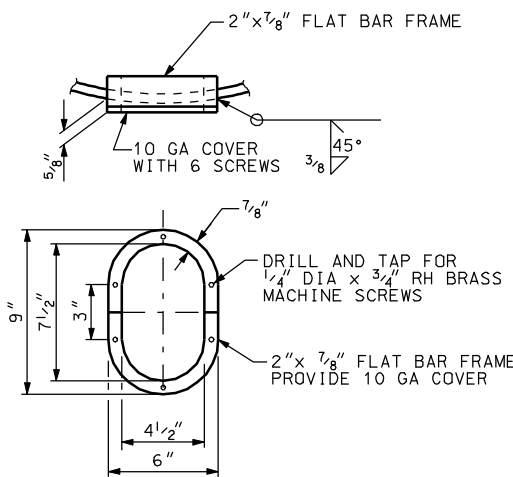


MAST ARM FIELD SPLICE

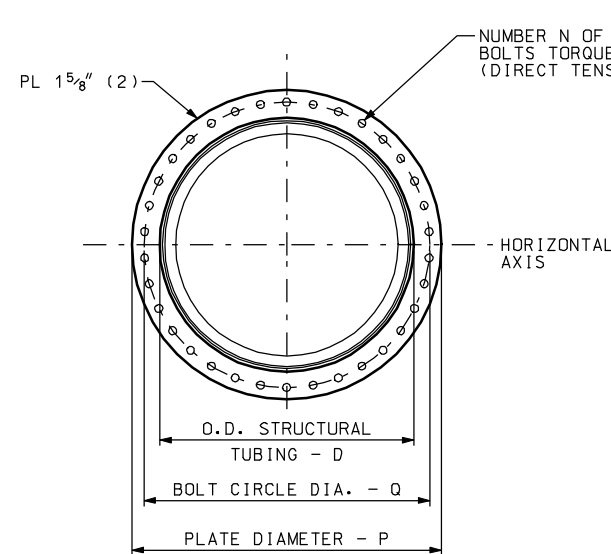
SEE GENERAL NOTE 13 ON
"LOCATION PLAN AND NOTES" SHEET



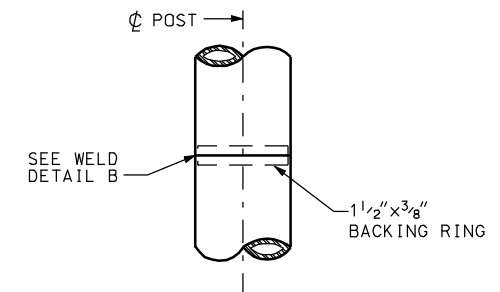
DETAIL "E"



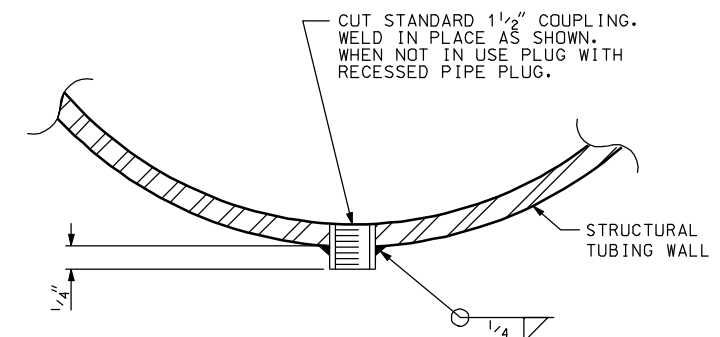
HANDHOLE & COVER DETAILS



SECTION B-B

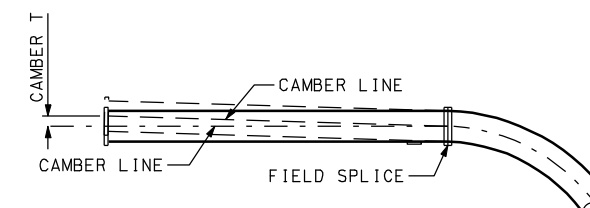


OPTIONAL SHOP SPLICE



DETAIL "D"

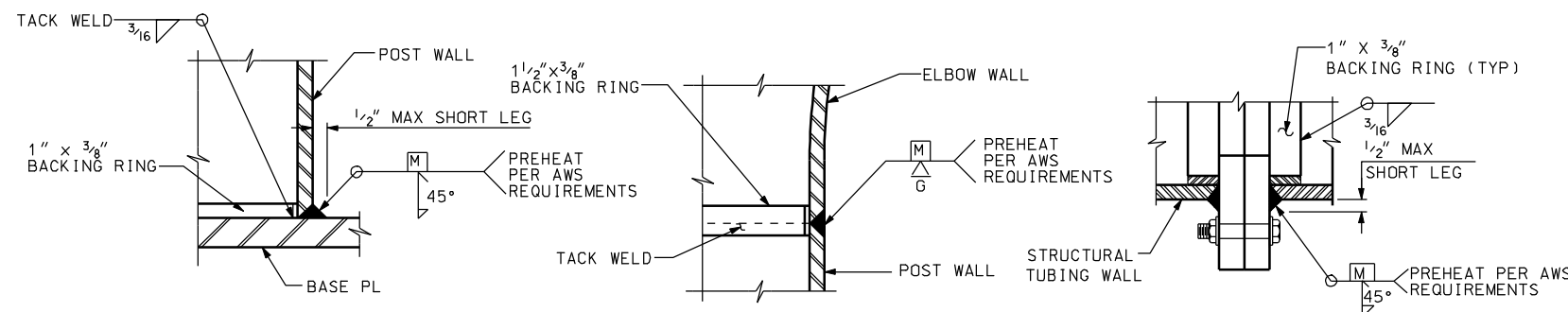
CHASE NIPPLE



CAMBER DIAGRAM

CAMBER NOTES:

1. THE CAMBER SHOWN IS REQUIRED TO BE BUILT INTO THE MAST ARM. MEMBERS SHALL BE ERECTED SO THAT CAMBER IS PROVIDED ABOVE THE HORIZONTAL LINE THRU THE FIELD SPLICE.
2. THE CALCULATED CAMBER PROVIDES FOR DEFLECTIONS DUE TO DEAD LOADS OF THE TUBULAR CANTILEVER STRUCTURE AND DEAD LOADS DUE TO SIGN PANELS AND ATTACHMENTS.



WELD DETAIL "A"

(AT BASE PLATE)

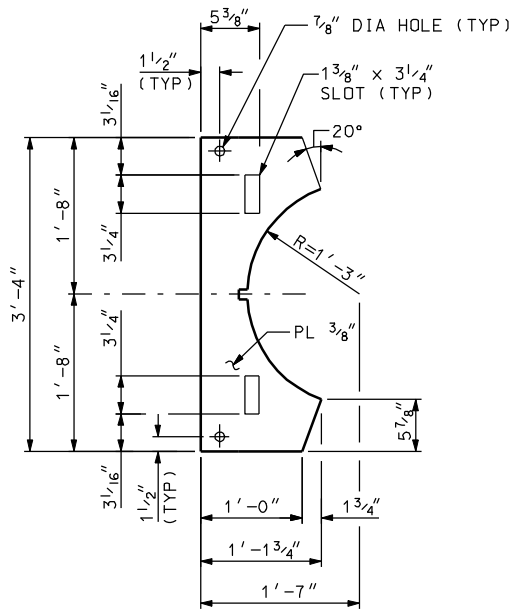
WELD DETAIL "B"

(AT OPTIONAL SHOP SPLICE)

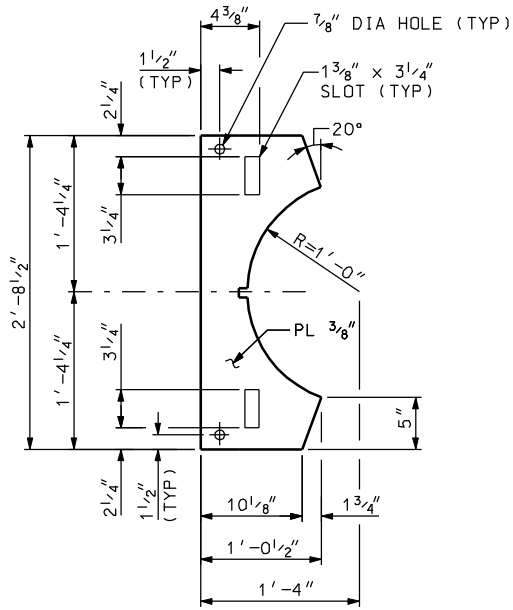
WELD DETAIL "C"

(AT FIELD SPLICE)

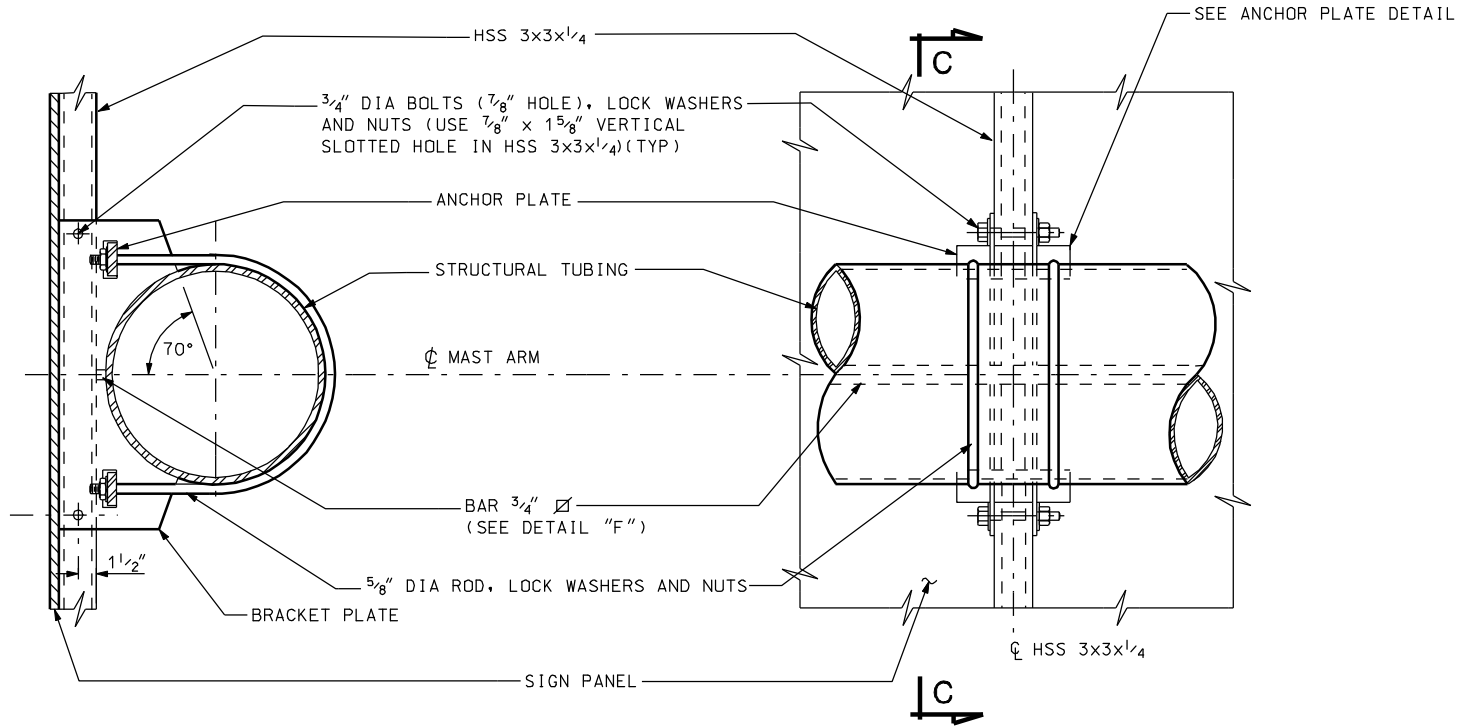
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30" DIAMETER BRACKET PLATE DETAIL



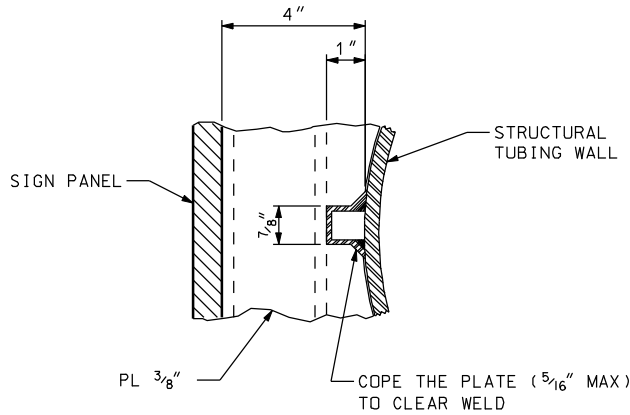
24" DIAMETER BRACKET PLATE DETAIL



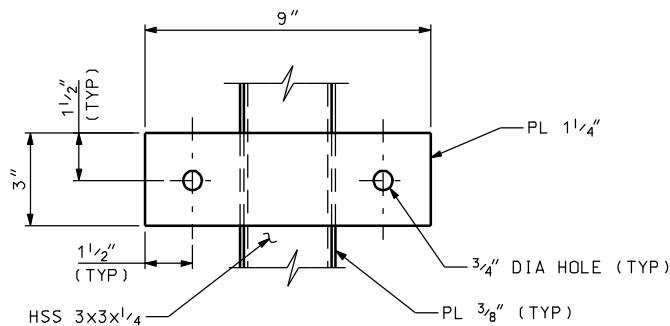
SECTION C-C

BACK ELEVATION

SIGN SUPPORT DETAILS



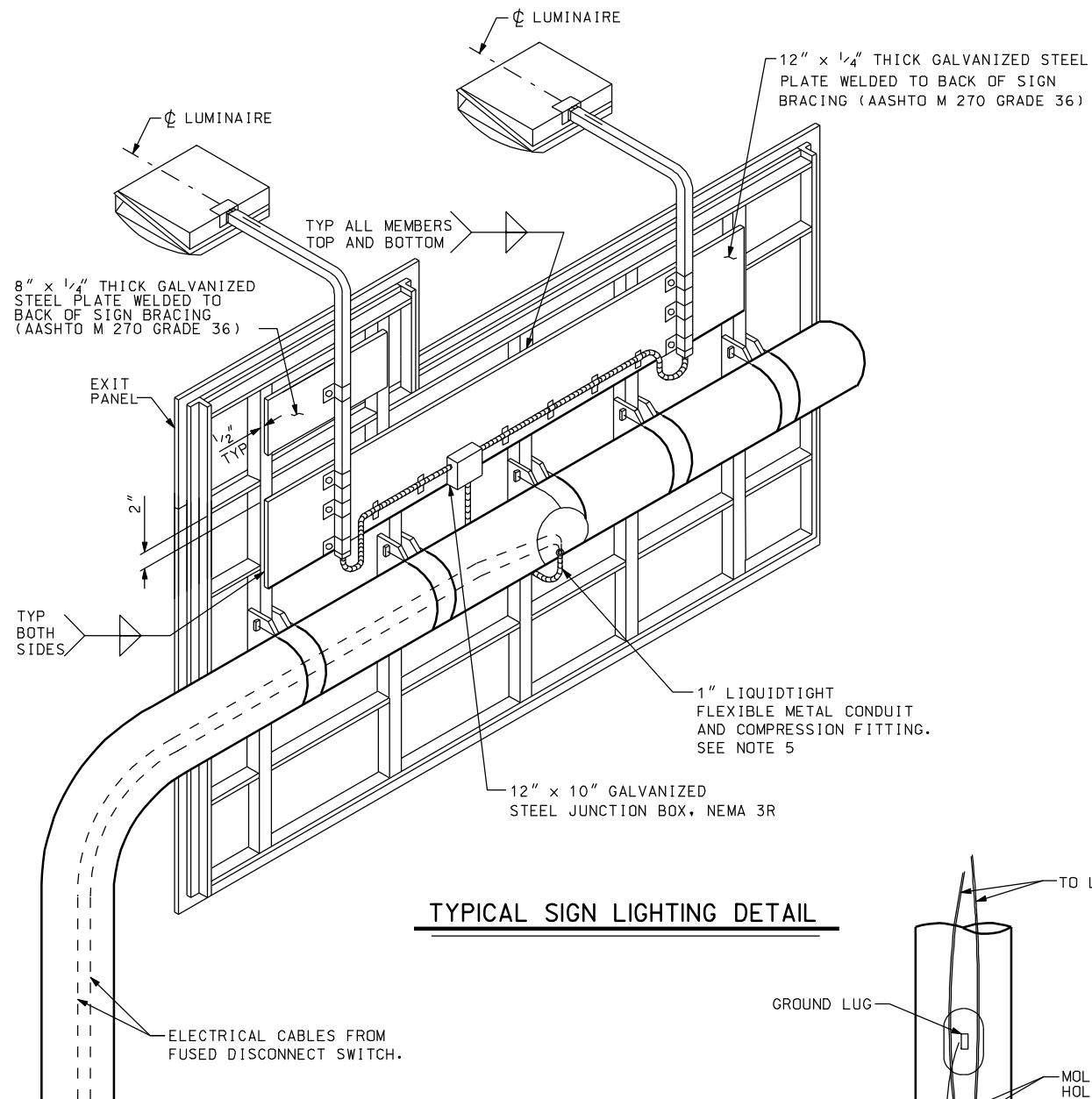
DETAIL "F"



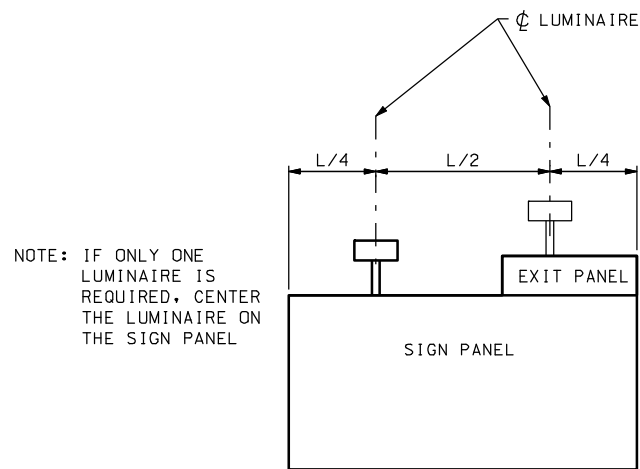
ANCHOR PLATE DETAIL

PROJECT NAME LINE 1		UTAH DEPARTMENT OF TRANSPORTATION															
PROJECT NAME LINE 2		SALT LAKE CITY, UTAH															
TUBE CONNECTION DETAILS		STRUCTURES DIVISION															
		APPROVAL RECOMM.		DATE		SENIOR DESIGN ENGR.		DESIGN		CHECK							
		APPROVED FOR USE BY UDOT		DATE		UDOT BRIDGE ENGR.		DRAWN		CHECK							
PROJECT NUMBER								QUANT.		CHECK		NO.		DATE		BY	
																REVISIONS	
COUNTY		COUNTY															
G-####-X		DRG. NO.															
SHT. 5		OF 6															

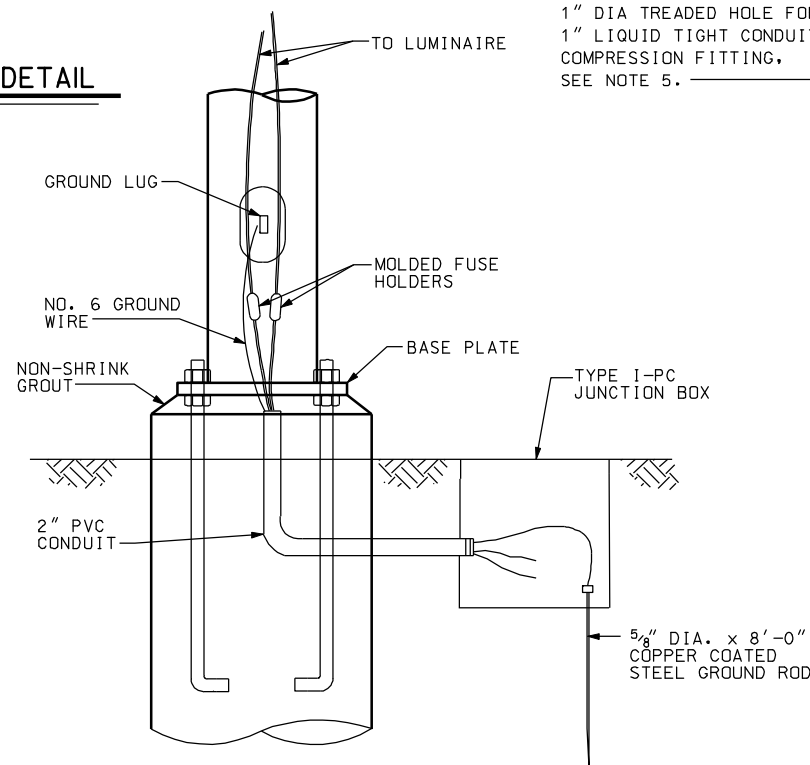
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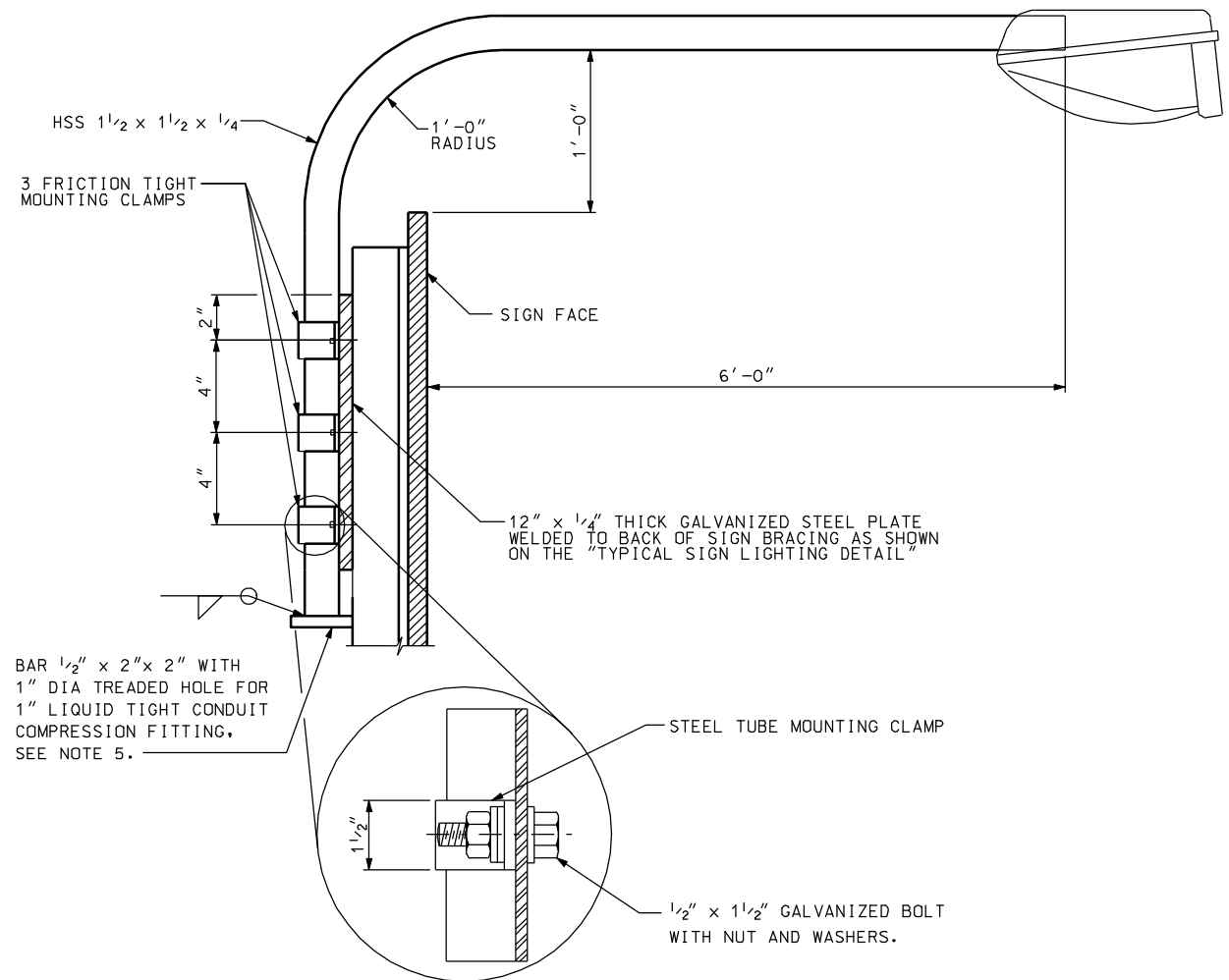
TYPICAL SIGN LIGHTING DETAIL



(LOOKING IN THE DIRECTION OF TRAVEL)



TYPICAL ELECTRICAL CONNECTIONS



LUMINAIRE MOUNTING DETAIL

NOTES

1. ADJUST THE LUMINAIRE SUPPORT LOCATION AS REQUIRED TO PROVIDE CLEARANCE BETWEEN MOUNTING LAMP BOLTS AND SIGN BRACING MEMBERS. SHIFT A MINIMUM AMOUNT FROM LOCATIONS SHOWN TO PROVIDE CLEARANCE.
2. LUMINAIRE SUPPORT AND CONNECTION TO SIGN PANEL TO BE PROVIDED BY THE SIGN STRUCTURE MANUFACTURER. MANUFACTURE THE SIGN STRUCTURE MAST ARM WITH A 1 1/2" NPS COUPLING WELDED TO THE BOTTOM OF THE SIGN SUPPORT ARM TO ACCEPT A 1 1/2" LIQUIDTIGHT CONNECTOR.
3. HOT DIP GALVANIZE ALL LUMINAIRE SUPPORT BRACKETS AND MOUNTING HARDWARE, INCLUDING HOLLOW STRUCTURAL SECTIONS (HSS), WITH SIGN BRACING AFTER FABRICATION.
4. DO NOT SPLICE WIRES WITHIN THE SIGN STRUCTURE. SPLICE WIRES IN THE JUNCTION BOX ONLY.
5. DRILL AND TAP 1" DIA HOLES TO MATCH COMPRESSION FITTING.
6. LOCATE NEMA 3R FUSED DISCONNECT SWITCH BOX ON THE BACK SIDE OF THE VERTICAL POST RELATIVE TO THE TRAFFIC. PLACE THE SWITCH BOX 5'-0" ABOVE THE FINISHED GRADE.

PROJECT NAME LINE 1		UTAH DEPARTMENT OF TRANSPORTATION		SALT LAKE CITY, UTAH		STRUCTURES DIVISION		REVISIONS	
PROJECT NAME LINE 2		DESIGN		CHECK		BY		REMARKS	
LUMINAIRE DETAILS		DRAWN		CHECK		DATE			
PROJECT NUMBER		QUANT.		CHECK		NO.			
		APPROVAL		DATE		DATE		DATE	
		RECOMM.		DATE		DATE		DATE	
		APPROVED		DATE		DATE		DATE	
		BY UDOT		DATE		DATE		DATE	
		UDOT BRIDGE ENGR.		DATE		DATE		DATE	
		COUNTY		COUNTY		COUNTY		COUNTY	
		G-####-X		DRG. NO.		DRG. NO.		DRG. NO.	
		SHT. 7		OF 6		OF 6		OF 6	